

IN THE SPECIFICATION

A/ [0003] Figures 1 and 2, for example, illustrate a known testing arrangement and procedure for testing a mixed signal electronic device. The arrangement includes analog test set up 101 and digital test set up 103. The analog procedure starts in step T1, and in step T2 tester driver 102 of analog test set up 101 provides an input test signal through a tester interface unit 104 to mixed signal electronic device under test 106. In step T3, the resulting output test signal from device 106 is applied through tester interface unit 108 to tester receiver 110. Tester 112 receives inputs from ~~tester driver 104~~ tester driver 102 and from tester receiver 110 and in step T4 processes analog data from the device output signal. Tester 112 might be an analog tester or a mixed signal tester. In step T5 tester 112 determines whether the analog data are acceptable. If not, then in step T6 tester 112 adjusts the test signal, and the process returns to step T2. If the analog data are acceptable, then in step T7, tester 112 determines whether device 106 is acceptable. If so the device is accepted in step T8, and the process ends in step T9. If step T7 determines that device 106 is not acceptable, the device is rejected in step T10, and the process ends in step T9.

[0004] Once the analog testing is completed, device 106 is moved to digital test set up ~~104 and the~~ 103 and the digital test procedure starts in step T11. In step 112 tester driver 114 provides an input test signal through a tester interface unit 116 to mixed signal device 106. In step T13, the resulting output test signal from device 106 is applied through tester interface unit 118 to tester receiver 120. Processor 122 receives inputs from tester driver 114 and from tester receiver 120 and in step T14 processes digital data

from the device output signal. In step T15 processor 122 determines whether the processed digital data are acceptable. If not, then in step T16 processor 122 adjusts the test signal, and the process returns to step T12. If the digital data are acceptable, then in step T17, tester 122 determines whether device 106 is acceptable. If so, the device is accepted in step T18, and the process ends in step T19. If step T17 determines that the device is not acceptable, the device is rejected in step T20, and the process ends in step T19. This testing requires two test set ups 101 and 103 and two test procedures. Alternatively, if tester 112 is a mixed signal tester, the device is left there, and the digital test procedure is performed on it. In either case, it is expensive and time consuming to test a mixed signal device.

[0025] Figure 6 is a flow chart of a preferred embodiment of a method of evaluating performance of a test environment and an actual electronic device during testing of the electronic device on the apparatus of Figure 5. In step S21 virtual device 60 is created, and in step S22 virtual tester-oscilloscope environment 58 is created. These two steps might be performed in either sequence. In step S23, virtual tester driver 62 applies a signal to stimulate virtual device 60. That signal emulates an actual test signal that might be applied to an actual device emulated by virtual device 60. In step S24 analog data are obtained by virtual differential oscilloscope 68, while in step S25 digital data are obtained by virtual tester receiver 74. In steps S26 and S27, the analog data and the digital data are processed by the first and second processing algorithms of processor 76. In steps S28 and S29, analog data and digital data are fed back and exchanged between the two processing algorithms ~~so to optimize~~ so as to optimize the processing,

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which continues in steps S30 and S31. In step S32, the processed data are compared, and in step S33 it is determined whether the results of the comparison indicate that the processing should continue. If so, then the method returns to steps S26 and S27 for further processing of the data. Once it is determined in step S33 that the processing is not to continue, then in step S34 it is determined whether the data are acceptable. If not, then in step S35 the stimulating signal is adjusted, and the method returns to step S23. Once it is determined in step S34 that the data are acceptable, it is ~~determined in step S35~~ determined in step S36 whether the device under test is acceptable. If so, the device is accepted in step S37, and the process ends. If step S36 determines that the device is not acceptable, the device is rejected in step S38, and the process ends. The processing of the first and second data in steps S26, S27, S30, and S31 and the adjusting of the stimulating signal in step S35 can be similar to the respective corresponding steps S5, S6, S9, S10, and S14 performed during the method of Figure 4.
